PRECISE SPATIAL

CAPABILITY STATEMENT

LiDAR Scanning & UAV

Mar 2025 - v1.0

LiDAR - SCANNING & UAV

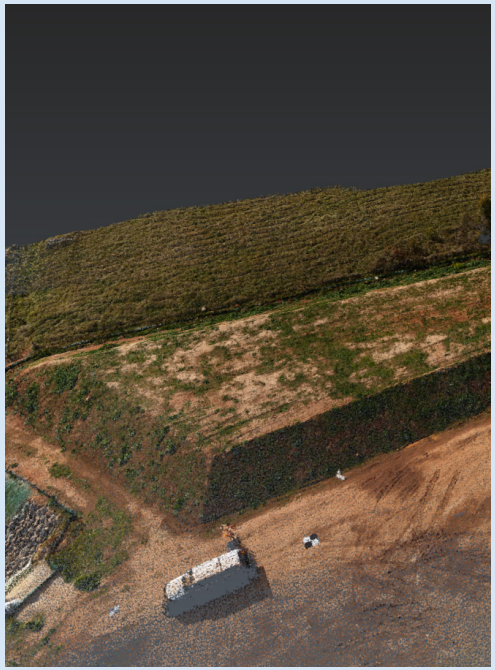
LiDAR (Light Detection & Ranging) services provide unprecedented amounts of data, ensuring large areas are surveyed safely & efficiently. This facilitates further analysis, drafting, modelling, inspection & obtaining additional measurements without the need to return to the site.

Our methods include the use of the Leica ScanStation P40, which delivers the highest quality 3D data & High-Dynamic Range (HDR) imaging, as well as the latest generations of drone & vehicle-mounted scanners, including the DJI Matrice 350 RTK with CHNAV AlphaAir 450 & Emesent Hovermap ST-X, along with their associated programs. The Emesent Hovermap ST-X is a versatile LiDAR platform, allowing for handheld, vehicle-mounted & drone-mounted operation.

All UAV usages will comply with the conditions & requirements of the Civil Aviation Safety Authority (CASA), including methodologies & associated documentation. All drones are controlled by an Accredited Remotely Piloted Aircraft (RPA) operator.

Our Team can help you with:

- Capturing high-resolution, detailed scans of complex structures and environments
- Conducting high-precision LiDAR aerial mapping of large areas, including intricate features & vegetation details.
- Providing customised data processing & visualisation solutions tailored to your project needs
- Delivering comprehensive reporting & analysis to support informed decision-making for your projects.



BIM / PLAN / REPORT

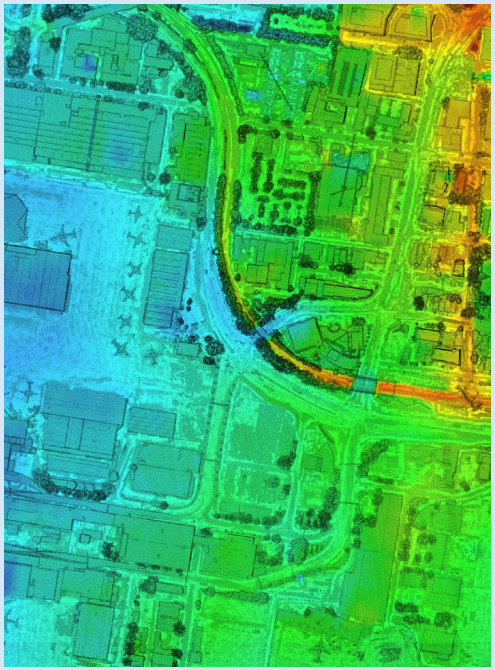
Initial stages of any project, BIM (Building Information Modeling) provides visual assessments & verification in 2D & 3D properties. Throughout the project, BIM will be constantly updated with amended or additional information to maintain & ensure reliability. This can generate an immersive virtual environment that can be explored for a greater understanding of the project & assist in future design & verifications.

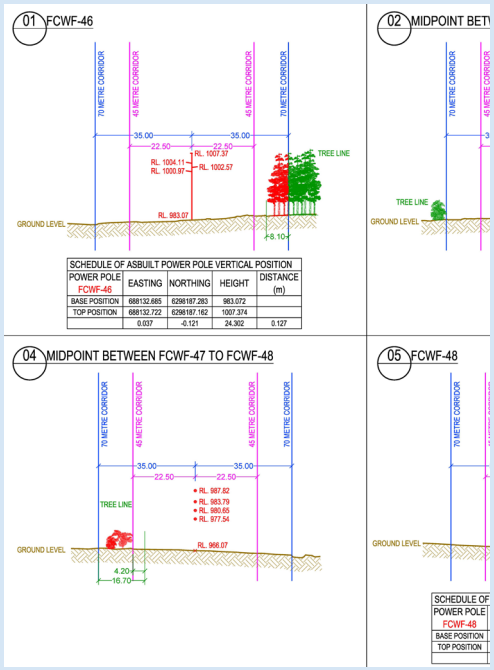
Deliverables will include Georeferenced & classified point clouds data files, Digital Surface Model (DSM) & Digital Terrain Model (DTM), 3D topographic maps with contour lines, natural & anthropic elements, sorted layers in DWG format.

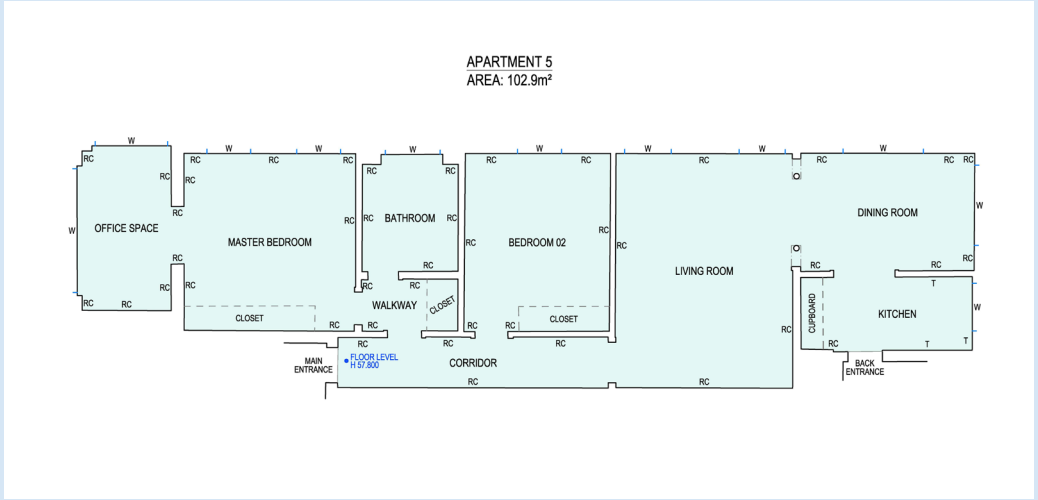
Pointerra 3D is a web browser-based point cloud viewer & collaboration platform with virtual tour & inspection capabilties that can be shared with all stakeholders. Cyclone 3DR is a full-scale point cloud management program with automated point cloud analysis, modelling & cleaning.

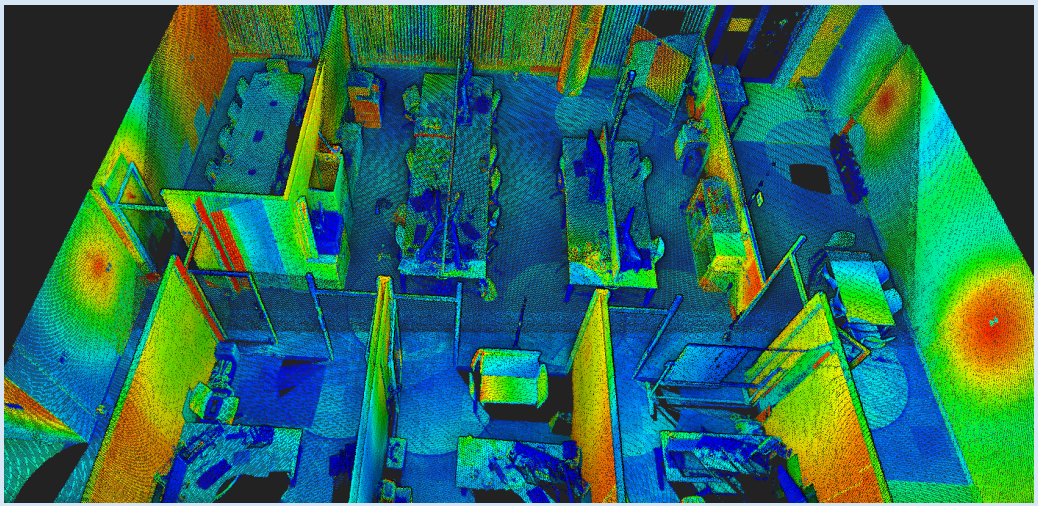
Our Team can help you with:

- Compile data to create 2D plans & 3D models
- Reports & BIMs can be produced upon Client's request
- In the case of drafting survey plans for lodgement, the Registered Surveyor can consult reports in line with legislation & AHJ requirements.
- Deliverable formats will be made available to the Client in a timely manner









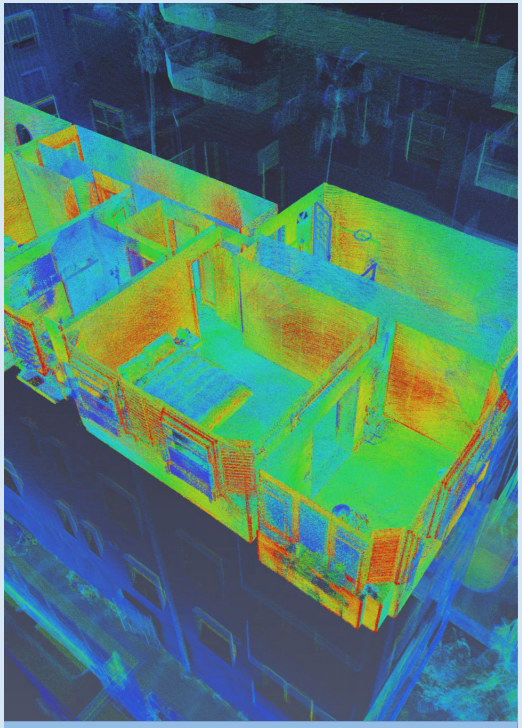
CASE STUDIES

▷ YouTube Link

Extensive research highlights the value of using drones to capture high-resolution imagery & LiDAR data for a wide range of survey requirements. Using equipment such as the Leica P40 ScanStation & DJI Matrice 350 RTK, equipped with CHCNAV AlphaAir 450 & Emesent Hovermap ST-X, Precise Spatial can capture large amounts of data & provide tailored deliverables.

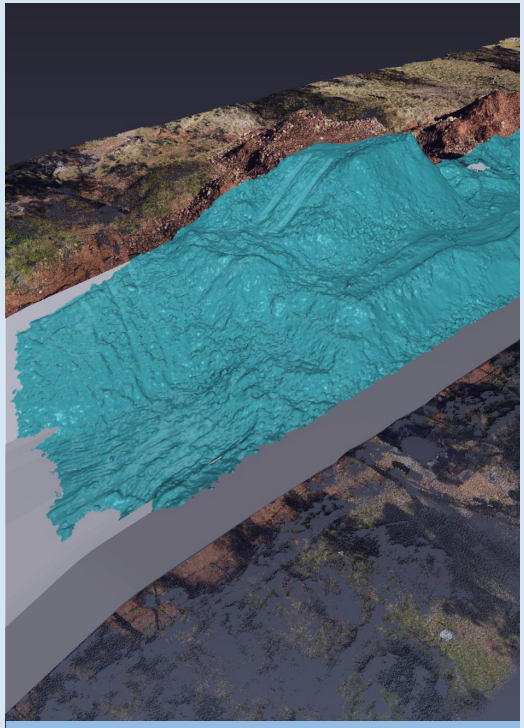
These technologies allow us to deliver precise & accurate measurements in situations where traditional survey methods may not be a viable option. The case studies demonstrate our ability to leverage advanced LiDAR capabilities across multiple industries, ensuring reliable, high-quality results that meet project briefs.

Click on the YouTube link to view our case studies. Alternatively, visit our website to read more about them: https://www.precisespatial.com.au/case-studies



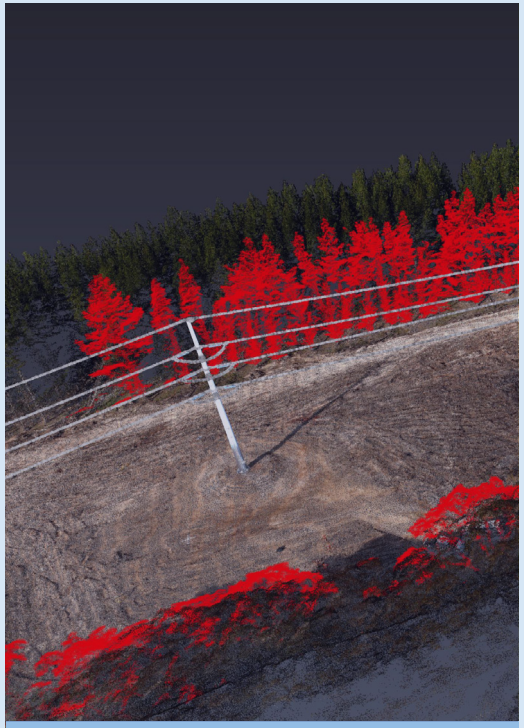
SLAM & TLS Building Scan:

Accurate & detailed scanning of residential buildings is essential for a variety of applications, from renovation planning to safety assessments. At Precise Spatial, we leverage a range of advanced LiDAR technologies to deliver precise data tailored to the specific needs of each project.



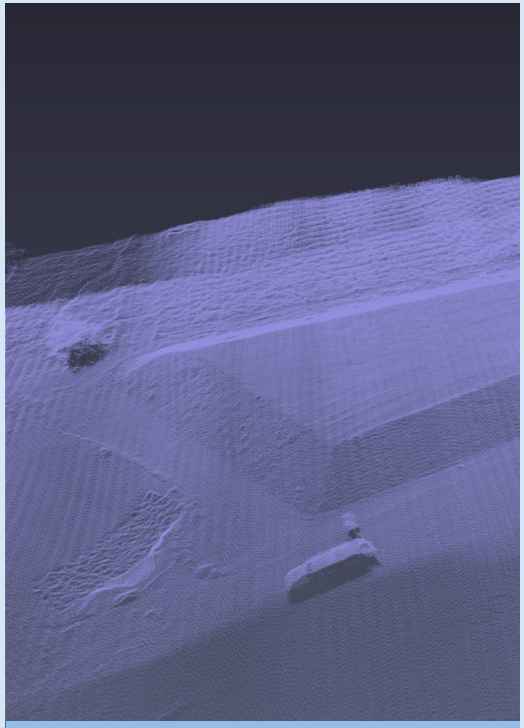
UAV LiDAR Calculations:

Using advanced aerial LiDAR systems, we capture precise data for stockpile assessments & earthworks, providing detailed volume calculations, accurate contour mapping & efficient cut & fill measurements.



132kV Transmission Line Corridor AsBuilt:

Vegetation encroachment & 70m clearance corridor requirements visualised using DJI Matrice 350 RTK equipped with the CHCNAV AlphaAir 450, complimented with the Leica P40 Laser Scanner



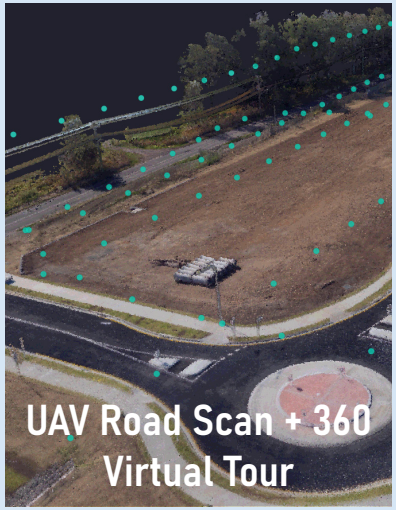
CHCNAV LiDAR Stockpile:

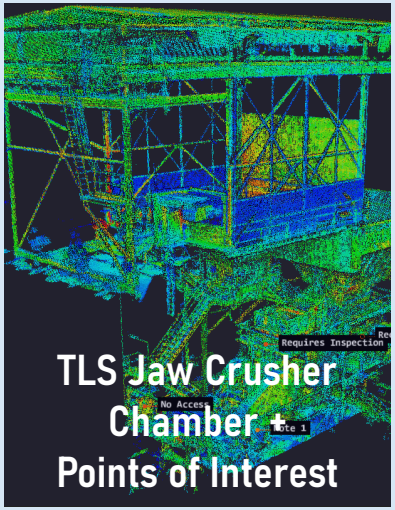
Stockpile survey comparison between a drone LiDAR flight alongside the conventional method of a surveyor using a GNSS rover.

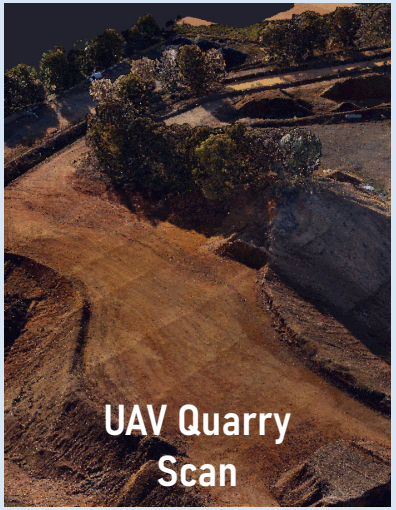
EXAMPLE LiDAR DATASETS

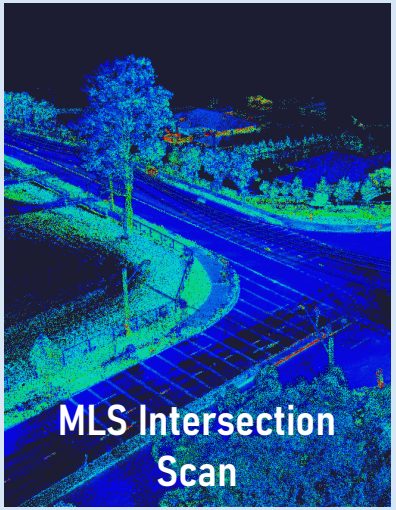
These examples highlight the diverse applications of LiDAR datasets collected through a range of scanning technologies, including terrestrial, aerial, vehicle-mounted & handheld scanners. Terrestrial LiDAR offers precise measurements with millimetre accuracy for detailed data collection, such as historic & heritage site documentation, as well as for large residential & commercial properties. Aerial LiDAR surveys are employed to capture large-scale topographic data, powerlines, stockpiles, and earthworks, ideal for generating high-resolution digital terrain models (DTM) for applications such as infrastructure development & vegetation encroachment. Handheld LiDAR scanners are used for more localised projects, enabling flexible data collection in a fraction of the time, while vehicle-mounted LiDAR systems allow for efficient mapping of roadways and mining tunnels, enabling precise data capture with high accuracy in complex, dynamic environments.

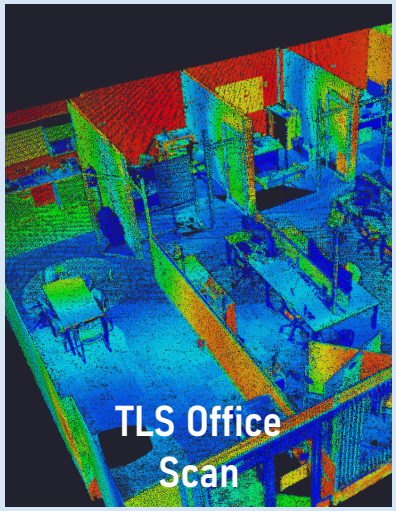
Click on the link below to navigate to the example LiDAR datasets via Pointerra. Alternatively, visit our website & view our datasets online: https://www.precisespatial.com.au/services/lidar-scanning-uav

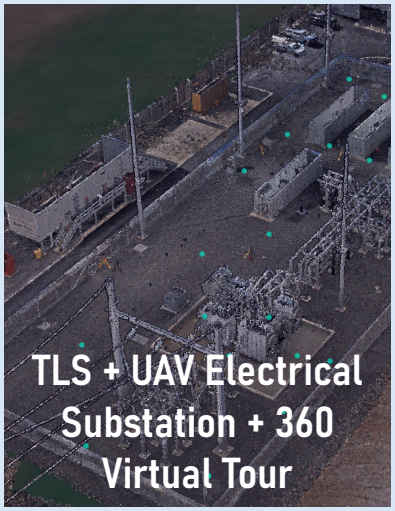


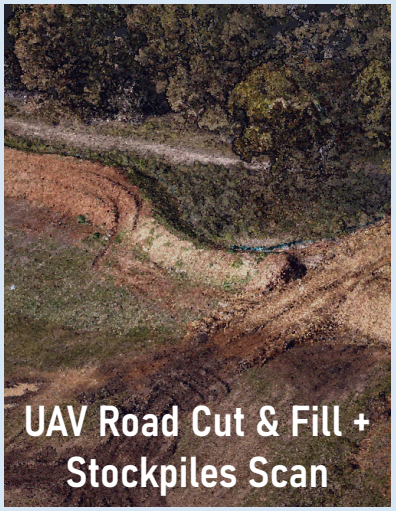


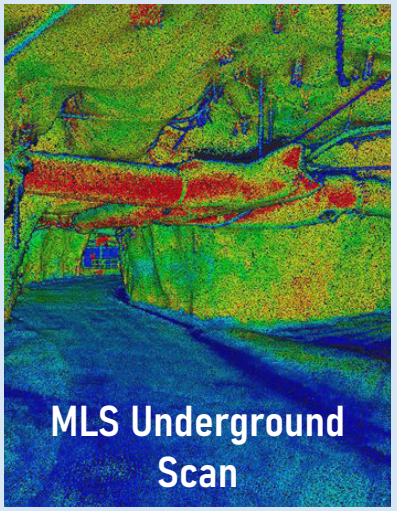












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